REMARKS

Claims 11-20 are pending in this application. The Office Action rejects claims 11-20 under 35 U.S.C. §103(a). Applicants respectfully traverse the rejections.

Applicants appreciate the courtesies extended to Applicants' representative during the February 6 personal interview with Examiners Chuang and Daniels. Applicants' separate record of the substance of that interview is contained in the following remarks.

I. Rejections Under 35 U.S.C. §103(a)

The Office Action rejects claims 11-13 and 17-20 under 35 U.S.C. §103(a) as unpatentable over Tada in view of Herman; rejects claim 14 under 35 U.S.C. §103(a) as unpatentable over Tada in view of Herman as applied to claims 11-13 and 17-20, and further in view of Yokoyama; rejects claim 16 under 35 U.S.C. §103(a) as unpatentable over Tada in view of Herman as applied to claims 11-13 and 17-20, and further in view of Kaneko; rejects claim 18 under 35 U.S.C. §103(a) as unpatentable over Tada in view of Herman as applied to claims 11-13 and 19, and further in view of Tada (US 6339038, hereinafter "Tada '038"). Applicants respectfully traverse the rejections.

Instant claim 11, from which claims 12-20 depend, recites

> Alkali fuel cell comprising a solid stack consisting of a first electrode, a solid membrane conducting hydroxide ions and a second electrode, each electrode comprising an active layer that is in contact with the solid membrane, wherein the material forming the active layer of each electrode comprises at least an catalytic element, an electronic conductive element and an element conducting hydroxide ions, the element conducting hydroxide ions being a polymer having vinylaromatic units comprising a quaternary ammonium function and hydroxide counter-ions OH- being associated with the quaternary ammonium functions of the polymer.

Thus, the instant claims are directed toward an *alkali fuel cell*. The claimed alkali fuel cell includes a solid membrane that conducts *hydroxide ions*. The claimed alkali fuel cell also comprises, at each electrode, an active layer that comprises at least a catalytic element, an

electronic conductive element, and an element conducting hydroxide ions that is a polymer having vinyl aromatic units comprising a quaternary ammonium function and hydroxide counter ions OH- being associated with the quaternary ammonium functions of the polymer.

In principle, alkaline fuel cells are based on hydroxide ion exchange, which includes the following reactions:

$2H_2O + 4e + O_2 \rightarrow 4\ OH$ occurring at the cathode

$2H_2 + 4OH \rightarrow 4H_2O + 4e$ occurring at the anode

The hydroxide ions are transported by membranes conducting *hydroxide ions* (OH). Additionally, the instantly claimed alkali fuel cell comprises a solid membrane conducting hydroxide ions, which forms a stack with a first electrode and a second electrode, and thus is unaffected by *carbonation phenomenon* when operating with air, yet still capable of exhibiting good performance and high ionic conduction. See for example the specification as filed at page 3, lines 11-13, page 6, lines 24-27 and page 9, lines 7-13.

In contrast, Tada discloses a *proton exchange membrane* fuel cell. Such fuel cells involve the following reactions:

$1/2\ O_2 + 2H^* + 2e \rightarrow H_2O$ occurring at the cathode

$H_2 \rightarrow 2H^* + 2e$ occurring at the anode

The protons in such motor exchange membrane fuel cells are transported by means of a polymer membrane conducting protons (H^*).

Proton exchange membrane fuel cells have lower oxygen reduction kinetics, are limited in the type of catalysts that can be used, are weaker conductors, etc., as compared to alkaline fuel cells. Additionally, proton exchange membrane fuel cells are not affected by the carbonation phenomenon. See specification as filed at, for example, pages 1 and 2.

Thus, skilled artisans would know that a proton exchange polymer membrane would be inoperable, and cannot be substituted, with a polymer membrane that conducts *hydroxide ions,* as is used in an alkaline fuel cell.

Herman and Tada are thus non-analogous art for purposes of the instant attempted combination as they would be inoperable if combined. Moreover, Herman nowhere remedies Tada's deficiencies, at least with respect to the claimed "element conducting hydroxide ions being a polymer having a vinyl aromatic unit comprising a quaternary ammonium function and hydroxide counter ions OH being associated with the quaternary ammonium functions of the polymer." Hence, no combination of Tada and Herman would have rendered obvious the features of instant claims 11-13 and 17-20 insofar as having combined Tada and Herman would not have obtained the instantly claimed features.

Because each of the remaining outstanding obviousness rejections relies upon the combination of Tada in view of Herman as applied to claims 11-13 and 17-20, the remaining obviousness rejections are moot. Moreover, none of Yokoyama, Howe, Kaneko or Tada '308 remedy the deficiencies of Tada and Herman, nor would they have rendered obvious the features of instant claim 1.

Thus, as was agreed on February 6 with Examiners Daniels and Chuang, the instant claims would not have been obvious over any combination of the foregoing references. Reconsideration and withdrawal of the rejections are earnestly solicited.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 11-20 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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